

WHAT IS CLAIMED

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1. A method of providing digital communications between a first site and a second site remote from said first site comprising the steps of:
  - (a) transporting digital communication signals sourced from first digital communication equipment installed at said first site over a first wireline communication link that also conveys electrical power for wireline digital communication equipment coupled thereto;
  - 10 (b) providing a first wireless communication device at a third site remote with respect to said first and second sites; and
  - (c) coupling said first wireless communication device to said first wireline communication link so as 15 to extract electrical power for operating said first wireless communication device from electrical power conveyed over said first wireline communication link, and enable said digital communication signals to be wirelessly transmitted by said wireless communication 20 device for delivery to said second site.

2. The method according to claim 1, further comprising the steps of:

- (d) providing a second wireless communication device at a fourth site remote with respect to said

5 third site;

(e) coupling a second wireline communication link, that conveys electrical power for wireless digital communication equipment coupled thereto and transports digital communication signals thereover, to  
10 said second wireless communication device at said fourth site and to digital communication equipment installed at said second site, so as to provide electrical power for operating said second wireless communication device and enable said digital  
15 communication signals to be received by said second wireless communication device and forwarded over said second wireline communication link to said digital communication equipment installed at said second site.

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3. The method according to claim 1, wherein said first wireless communication device comprises a digital radio that is operative to interface T1 rate digital telecommunication signals with said first wireline  
5 communication link, and to wirelessly transmit and receive RF energy containing said T1 rate digital telecommunication signals.

4. The method according to claim 1, wherein said first wireless communication device includes:  
a line interface coupled to said first wireline

communication link, and being operative to extract  
5 power therefrom and interface digital telecommunication  
signals transported thereover;  
a wireless transceiver, coupled to said line  
interface and being configured to wirelessly transmit  
and receive RF energy containing said digital  
10 telecommunication signals; and  
a DC-DC voltage converter coupled to said line  
interface and being operative to convert power  
extracted thereby to voltages necessary to operate said  
wireless transceiver.

5. The method according to claim 4, wherein said  
digital communication signals comprise T1 digital  
communication signals, said line interface includes a  
T1 framer, and wherein said wireless transceiver  
5 includes a transmitter unit that is configured to  
perform modulation and up-conversion to RF of baseband  
T1 digital communication signals provided by said T1  
framer, and a receiver unit that is configured to  
perform RF to baseband down-conversion and demodulation  
10 of RF energy received thereby and containing T1 digital  
communication signals for application to said T1  
framer.

6. A loop powered digital radio comprising:

a line interface that is adapted to be coupled to  
a wireline communication link over which digital  
communication signals sourced from first digital  
5 communication equipment installed at a first site are  
transported, said wireline communication link also  
conveying electrical power for operating wireline  
digital communication equipment coupled thereto, said  
line interface being operative to extract power from  
10 said wireline communication link and interface digital  
telecommunication signals transported thereover;

a wireless transceiver, coupled to said line  
interface and being configured to wirelessly transmit  
and receive RF energy containing said digital  
15 telecommunication signals; and  
a DC-DC voltage converter coupled to said line  
interface and being operative to convert power  
extracted thereby to voltages necessary to operate said  
wireless transceiver.

7. The loop-powered digital radio according to  
claim 6, wherein said line interface is adapted to be  
coupled to said wireline communication link at a second  
site that is remote from said first site and provides  
5 no source of electrical power, exclusive of that  
conveyed by said wireline link, that is sufficient to  
operate said radio.

8. The loop-powered digital radio according to claim 6, wherein said digital telecommunication signals comprise T1 rate digital telecommunication signals.

9. The loop-powered digital radio according to claim 8, wherein said line interface includes a T1 framer, and wherein said wireless transceiver includes a transmitter unit that is configured to perform modulation and up-conversion to RF of baseband T1 digital communication signals provided by said T1 framer, and a receiver unit that is configured to perform RF to baseband down-conversion and demodulation of Rf energy received thereby and containing T1 digital communication signals for application to said T1 framer.

*SVPA* 10. A system for providing digital communications between a first site and a second site remote from said first site comprising:

a first wireline communication link adapted to transport digital communication signals sourced from first digital communication equipment installed at said first site and convey electrical power for wireline digital communication equipment coupled thereto; and a first wireless communication device located at a

10 third site remote with respect to said first and second sites, and being operative to extract electrical power for its operation from said first wireline communication link and to wirelessly transmit said digital communication signals for delivery to said  
15 second site.

11. The system according to claim 10, wherein said first wireless communication device comprises a digital radio that is operative to interface T1 rate digital telecommunication signals with said first wireline communication link, and to wirelessly transmit and receive RF energy containing said T1 rate digital telecommunication signals.  
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12. The system according to claim 10, wherein said first wireless communication device includes:  
a line interface coupled to said first wireline communication link, and being operative to extract  
5 power therefrom and interface digital telecommunication signals transported thereover;  
a wireless transceiver, coupled to said line interface and being configured to wirelessly transmit and receive RF energy containing said digital  
10 telecommunication signals; and  
a DC-DC voltage converter coupled to said line

interface and being operative to convert power extracted thereby to voltages necessary to operate said wireless transceiver.

13. The system according to claim 12, wherein said digital communication signals comprise T1 digital communication signals, said line interface includes a T1 framer, and wherein said wireless transceiver 5 includes a transmitter unit that is configured to perform modulation and up-conversion to RF of baseband T1 digital communication signals provided by said T1 framer, and a receiver unit that is configured to perform RF to baseband down-conversion and demodulation 10 of Rf energy received thereby and containing T1 digital communication signals for application to said T1 framer.

*SUPA* 14. The system according to claim 10, further comprising

a second wireless communication device at a fourth site remote with respect to said third site; and 5 a second wireline communication link, that conveys electrical power for wireless digital communication equipment coupled thereto and transports digital communication signals thereover, coupled to said second wireless communication device at said fourth site and

10 to digital communication equipment installed at said  
second site, so as to provide electrical power for  
operating said second wireless communication device and  
enable said digital communication signals to be  
received by said second wireless communication device  
15 and forwarded over said second wireline communication  
link to said digital communication equipment installed  
at said second site.